REMARKS

Claims 2 and 3 have been canceled. Claims 1 and 4-20 remain pending in the application. Applicants amend claim 1 to incorporate features of canceled claims 2 and 3, and amend claims 4-7 and 9-15 for proper dependency and clarification. No new matter has been added.

Applicants respectfully request that the Examiner indicate acceptance of the drawings.

Applicants acknowledge with appreciation the Examiner's finding that claims 8, 13, and 17 contain allowable subject matter. As discussed below, base claim 1 is patentable over the reference cited by the Examiner. Applicants, therefore, respectfully request that the Examiner allow claims 8, 13, and 17.

Claims 7-9, 12, and 14-15 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

In particular, the Examiner objected to the terms "second deletion unit, "third deletion unit, " "fourth deletion unit," and "fifth deletion unit" in claims 7, 9, 12, and 14, respectively, for lack of antecedent basis apparently because there is no "first deletion unit" in either base claim 1 or intervening claim 2. Applicants amend the terms "second deletion unit" in claim 7, "third deletion unit" in claim 9, and "fifth deletion unit" in claim 14 to "first deletion unit." Correspondingly, Applicants amend the term "fourth deletion unit" in claim 12 to "second deletion unit." The Examiner also objected to the term "CAM" from claim 15 for being unclear what it stands for. Applicants refer the Examiner to page 21, lines 33-35 in the specification for support of this claim limitation. The claimed term is clearly defined in the specification. Applicants respectfully request that the Examiner withdraw the § 112, ¶ 2 rejections.

Claims 1-7, 9-12, 14-16, and 18 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,021,130 to Kozaki et al.

The claimed invention provides for dynamic management of virtual channels used in an ATM communication apparatus. Objects of the invention include facilitating separate processing for each virtual channel even when a contract with a user is made on a virtual-path-specific basis, eliminating the need to register in advance a virtual channel in management memory so that an unused virtual channel would not occupy resources such as the management memory, and, thus, accommodating an increased number of virtual channels.

The claimed invention includes a management memory and a detection unit that detects an active virtual channel used by an arriving ATM cell. The claimed invention further includes processing, on a frame-by-frame basis, cells having a virtual channel identifier that matches that of the active virtual channel managed by the management memory unit.

In order to efficiently perform such frame-by-frame processing, the management memory unit includes a translation table for converting a virtual channel identifier into an internal management number for internal management, and includes a frame management table for storing information for frame-by-frame processing of each virtual channel in such a manner as to correspond to the internal management number. The frame-by-frame processing is performed based on the frame management table. In this manner, the frame management table stores necessary information separately for each virtual channel depending on the type of frame processing. The claimed invention further provides for frame processing, such as EPD, being performed separately from the processing that detects an active virtual channel. Please see, e.g., Fig. 7 and its corresponding description on page 10, line 15 to page 11, line 13 in the specification for an exemplary embodiment of this claimed feature.

Kozaki et al. describe an ATM switching system with Permanent Virtual Connection ("PVC") allocation. The Examiner relied upon Figs. 7-9 and their corresponding description in Kozaki et al. as alleged disclosure of the claimed invention. The cited portions of Kozaki et al. describe an ATM switch that includes a common buffer and a buffer controller. The buffer controller includes a PVC allocation circuit that registers the identifier (PVC allocation) for an admitted burst data. The system described in Kozaki et al., therefore, merely passes cells with respect to selected burst data in the PVC mode. If the band of the output channel has an available space at the time of arrival of a first cell of the burst data, the VCI of the burst data is registered as identification information to determine whether to allow the passage. As for cells arriving thereafter, only those cells having the same identification information as the registered information are selected to pass. Since the technique described in Kozaki et al. is premised on the use of the PVC mode, virtual channels to be used are registered in memory in advance. Thus, inactive virtual channels may occupy resources such as management memory. Furthermore, in the PVC mode, there would be no use for the claimed feature of dynamically detecting an active virtual channel.

As such, Kozaki et al. fail to disclose,

> "a detection unit which detects an active virtual channel used by an arriving ATM cell;
>
> a management memory unit which manages management information about the active virtual channel detected by the detection unit for each virtual channel, the management memory unit including a translation table and a frame management table, the translation table converting a virtual channel identifier contained in a cell header of the cell into an internal management number for internal management, the frame management table storing information for frame-by-frame processing of each virtual channel in such a manner as to correspond to the internal management number; and
>
> a first registration unit that registers a virtual channel identifier of an arriving cell into the management memory unit

when the virtual channel identifier of the arriving cell is not managed by the management memory unit,

wherein processing on a frame-by-frame basis is applied to cells having the virtual channel identifier that matches that of the active virtual channel managed by the management memory unit," as recited in claim 1. (Emphasis added)

Accordingly, Applicants respectfully submit that claim 1, together with claims 2-7, 9-12, 14-16, and 18 dependent therefrom, is patentable over Kozaki et al. for at least the above-stated reasons.

Claims 19-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kozaki et al. in view of U.S. Patent No. 5,696,764 to Soumiya et al.

The Examiner cited the additional reference to specifically address the additional features recited in the rejected dependent claims. As such, the combination of references would still fail to teach or suggest the above-cited features of claim 1, even assuming such combination would have been obvious to one skilled in the art at the time the claimed invention was made. Accordingly, Applicants respectfully submit that claims 19-20, which depend from claim 1, are patentable over the cited references for at least the above-stated reasons with respect to base claim 1.

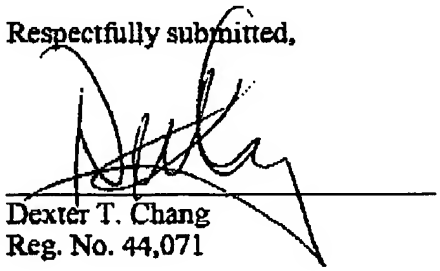
The above statements on the disclosure in the cited references represent the present opinions of the undersigned attorney. The Examiner is respectfully requested to specifically indicate those portions of the respective reference that provide the basis for a view contrary to any of the above-stated opinions.

Applicants appreciate the Examiner's implicit finding that the additional references made of record, but not applied, do not render the claims of the present application unpatentable, whether these references are considered alone or in combination with others.

In view of the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,



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